

In contrast with the skewed switch impact buried in Pacific's study, AT&T has developed a comparison of the relative switch usage efficiency of LRN and QoR using information obtained from the responses of Lucent Technologies and Siemens Stromberg-Carlson to the Task Force.<sup>7</sup> This data shows that LRN is more efficient than QoR in switch usage efficiency at portability rates as low as 12% for the Lucent 5ESS® and 23% for the Siemens EWSD. Actual crossover points are even lower, since this calculation assumed only direct trunking between originating and donor switches for QoR (i.e., no intermediate (tandem) switches). This assumption favors QoR since it omits consideration of QoR switch usage on tandems.

Despite discussion of the point at the May 2 meeting, at which service providers were asked to consider their own needs and not those of other carriers, Pacific's Economic Calculations, Assumption 5 states, "[n]etwork must be sized to handle queries of the largest interLATA carrier's calls in case of default routing. Assume that the largest IEC carries 60% of interLATA traffic." Any cost attributed to this invalid assumption should be removed.

Pacific's Economic Calculations for QoR adds an additional Assumption 13, the agreed-upon portability rates. For LRN, however, Pacific did not account for portability rates at all.

---

<sup>7</sup> See LRN vs. QoR: Switch Usage Efficiency, prepared by AT&T, attached as Exhibit 4.

Pacific's Economic Calculation Assumption 4 is questionable, and appears to be too low. Assumption 4 supposes a traffic mix with only 20% intraswitch traffic. (GTE used 33% intraswitch traffic, by comparison.) Since neither QoR nor LRN require queries for intraswitch traffic, the effect of a low intraswitch figure is to increase the interswitch figure, where LRN requires more queries on some interswitch calls.

Pacific's Economic Calculation Assumption 9 for both LRN and QoR assumes an erlang level (a measure of engineering capacity) of 0.3 erlang. This is in contrast with the industry standard of 0.4 erlang, as documented in Bellcore specification GR905. The result of using the 0.3 specification is to increase the number of links and databases, and thereby inflate the costs, disproportionately so for LRN.

Pacific's Exhibit 4 concludes with 2 memos dated March 5, 1996. One pertains to Operational Support Systems ("OSS") and the other pertains to Billing. Neither even mention QoR, but refer to LRN and RTP. This raises the question as to whether Pacific's OSS and Billing numbers have any relevance to a comparison between QoR and LRN. The OSS memo states that the expense and capital costs to support either LRN or "RTP/lrn" are the same. If QoR is considered, then these costs are likely understated for QoR, since there is more provisioning (and probably more associated maintenance) to account for with QoR than with LRN or the now-abandoned RTP/lrn.

*Notably, despite the litany of flaws and inconsistencies in Pacific's study, Pacific's figures fail to demonstrate substantial cost savings for QoR. Pacific's figures show only a 10% cost savings for QoR at 20% porting. The touted savings diminish to 7% at 30% porting, and fall to only 5% at 40% porting. When other infirmities in Pacific's methodology are accounted for, even these minimal savings disappear.*

An analysis of Pacific's cost study with adjustments to account for some of the flaws is attached as Exhibit 3.<sup>8</sup> By making a few changes to Pacific's assumptions in accord with the points noted above (e.g., Assumption 9 set erlang level at 0.4, Assumption 5 do not size for queries for largest interLATA carrier, and remove real time costs which had only been included for LRN), the already insignificant savings not only vanishes; it is evident that LRN is less expensive than QoR.

With those adjustments, Pacific's claimed \$71M savings at 20% porting, when adjusted as noted above, dwindles to \$1M. At 30% porting, LRN is \$12M less expensive than QoR, and at 40% porting, LRN is \$13M cheaper.

---

<sup>8</sup> The Adjusted Analysis of Pacific Bell Cost Study, is provided under seal and subject to same terms as Exhibits 2A and 2B. See footnote 4, *supra*.

**B. GTE's Cost Study<sup>9</sup>**

Again, despite the clear instructions to the Task Force, and the Commission's previously stated intent to address cost recovery in Phase III of this proceeding, GTE (like Pacific) has apparently focused on cost recovery more than on the requested relative cost comparison. For example, GTE argues for creation of a memorandum account until cost recovery is resolved. Their suggestion is misplaced and should be ignored.

Similarly, GTE (like Pacific) states that it will not make any vendor commitments until cost recovery is resolved. If adhered to by the dominant LECs, that position would undercut support for QoR. The reason, of course, is that vendors are already proceeding apace with LRN development, since LRN has been chosen in every other state that has reviewed LNP architectures.

Other deficiencies with the GTE study, which at least bears some resemblance to the format agreed upon in the Task Force, include the following:

An example of GTE's effort to include data clearly unrelated to a relative cost comparison is evident at GTE's page E-5. The last item on that page claims that 50% of AIN deployment is attributable to LNP. Apart from

---

<sup>9</sup> Statements which rely upon information deemed proprietary by GTE will be redacted from the public version of this filing, and will be available only to parties who have executed an appropriate nondisclosure agreement with GTE.

the issue of whether this statement is accurate, it is clearly not relevant to a relative cost comparison between QoR and LRN.

Similarly, GTE has apparently included the cost of replacing switches (e.g., an antiquated step-by-step switch) as a cost attributable to LNP.

GTE's efforts to upgrade its obsolete facilities are commendable, but those costs cannot be properly assigned to LNP implementation, much less included in a relative cost comparison between QoR and LRN.

GTE's claims for additional trunks are puzzling. For one thing, it appears that GTE used a cost per additional trunk of \$ [REDACTED] which seems somewhat understated. Also, GTE uses exactly the same trunk figures for both LRN and QoR, although it is understood that QoR requires additional trunks for call setup to ported lines. This differential should be identified and properly costed. Since GTE uses the same figures for both LRN and QoR, however, it is claiming no differential; thus the entire trunking cost should be excluded as common to both architectures. Moreover, over 92% of the total additional trunk cost (\$ [REDACTED] million out of \$ [REDACTED] million) is attributed to "[a]dditional trunk cost for connection to ALECs." It is unclear whether this additional cost is even attributable to LNP.

GTE suggests (at GTE Exhibit E) that the SCP (Service Control Point) costs and QoR benefits may have been understated. Of course, the opposite could be true, i.e. GTE's SCP costs could be overstated, and thus QoR's purported benefits would be overstated. In fact, the latter is more likely,

given natural advancements in database technology. Thus, as cheaper, faster SCPs are available, fewer SCPs will be needed and each SCP will cost less.

*Despite the numerous infirmities in GTE's study, its Exhibit D is most revealing on the relative cost comparison. Notably, GTE shows QoR saves a mere 11% over LRN at a 20% porting rate, and virtually NO savings at 30 % or 40% porting.*

**4. The Implementation Schedules Proposed by Pacific and GTE are Self-Serving, Anticompetitive, Inaccurate, and Internally Inconsistent with Their Positions on NPA Relief.**

Perhaps nowhere is Pacific's and GTE's interest in delaying LNP more evident than in the proposed implementation schedules they suggest. Several general points are worth noting about these self-serving proposals. One is that Pacific and GTE have chosen to ignore, overlook, or minimize a key date for availability of the software necessary to implement QoR on certain switch types. Specifically, Lucent Technologies informed the Task Force that the software for QoR on Lucent switches will not be available until 18 months following the development of firm requirements. Of course, this would put QoR availability for Lucent switches well beyond the date for LNP implementation in other states.<sup>10</sup> Pacific and GTEC, however, purport to

---

<sup>10</sup> For example, LNP using LRN is expected to be deployed beginning 3Q-4Q97 in Illinois, Maryland and Georgia.

"true up" the schedule by putting the date for LNP deployment using either LRN or QoR at the end of 1998.

Secondly, these schedules fly in the face of Pacific and GTEC statements in their quests to impose overlay NPA relief on the public and new competitors. For example, to bolster support for overlays, Pacific has previously cited to the Commission the estimated LNP implementation date of 2Q97.<sup>11</sup> GTE told the Commission on April 16 that "Permanent SPLNP will be in place in California prior to the projected NXX code exhaust in the following NPAs: 818, 916, 714, 213, 209, 408, 510, 805, 909, and the second 310 exhaust," and also noted that "[t]wo Regional Bell Operating Companies (RBOCs) serving other states have committed to implementing SPLNP by third quarter 1997."<sup>12</sup> Even more recently, GTE, in claiming that "Anti-Competitive Concerns Of An Overlay Have Been Addressed," stated in a May 2 *ex parte*, "Service provider number portability [is] scheduled to be available prior to the required implementation of NPA relief in the 415, 916, 714 and 213 areas."<sup>13</sup> As NPA exhaust data compiled by Pacific's Code Administrator reveals, the only way this statement can be accurate is to adopt the realistic schedule proposed by Joint Commenters.<sup>14</sup>

---

<sup>11</sup> See Pacific Comments on Overlay Policy filed April 16, 1996, attached as Exhibit 5.

<sup>12</sup> See GTE Comments on Overlay Policy filed April 16, 1996, attached as Exhibit 6.

<sup>13</sup> See GTE Notice of Ex Parte Communication dated May 6, 1996, attached as Exhibit 7.

<sup>14</sup> See California NPA Exhaust 1996 Final View, source: Bruce Bennett, California Code Administrator, dated 5/21/96, attached as Exhibit 8.

A third point about these exaggerated schedules for permanent LNP implementation is the chilling effect they will have on competition. Even after passage of the Telecommunications Act of 1996 has removed any debate over the need for number portability, Pacific continues to suggest that number portability is not necessary for competition to develop.<sup>15</sup> It appears that Pacific is bent on fulfilling this prophecy, which its own market research failed to support. By delaying implementation of permanent LNP beyond any reasonable date, the LECs hope to accomplish several self-serving, anticompetitive goals. They force new entrants to rely on interim measures such as Remote Call Forwarding ("RCF"), which degrade service quality to customers of new service providers. Moreover, the new service providers must pay the dominant incumbents for this degraded service on a monthly basis, a revenue windfall that lasts until permanent LNP arrives.

Furthermore, RCF actually exacerbates the already acute numbering resource problem, because RCF requires the use of two assignable, dialable numbers for every ported subscriber, and thus hastens premature NPA exhaust. In seeking the efficient use of scarce numbering resources, the Commission should not allow the dominant LECs to extend unnecessarily the

---

<sup>15</sup> See presentation of Frank Jimenez, Universal Regulatory Manager of Pacific Bell to California Telephone Association, May 21 & 22, 1996, excerpts attached as Exhibit 9. In addition to repeating the discredited and (with the passage of TA96) irrelevant claims about the importance of number portability, this presentation concludes (p. 47) that "it will take at least four years to develop and deploy service provider portability on an [sic] ubiquitous basis."



time during which RCF is required to provide rudimentary LNP.<sup>16</sup>

Apart from these general observations, numerous other inaccuracies, misrepresentations and questionable assumptions are evident in the GTE and Pacific proposed schedules. These include the following:

The proposed schedule shows LRN First Office Application on the Lucent 5ESS in 2Q97, with General Availability on the 5ESS in 2Q98. This is incorrect; moreover, GTE and Pacific know it. General Availability on the 5ESS is 1Q97, more than a year earlier than claimed.<sup>17</sup>

GTE claims that General Availability ("GA") for the GTD5 switch follows First Office Application ("FOA") by six months. This appears odd, since its schedule puts a full year between FOA and GA for every other switch vendor. Of course, GTE is apparently the only service provider who has seen the vendor information on the GTD5.

Both schedules show 18 months between the signing of an SMS contract and the regional SMS being ready for deployment. In every other state working on an LNP deployment schedule, the time between SMS contract and SMS availability is no more than 12 months. Indeed, on SMS vendor (Lockheed, selected in Illinois) intends to deploy the SMS sooner.

---

<sup>16</sup> Other possible interim LNP methods which do not suffer from all the infirmities of RCF are technically feasible, but have not been made available by Pacific and GTE. See Coalition comments on DID, June 11, 1996, excerpts attached as Exhibit 10.

<sup>17</sup> See letter dated January 26, 1996 from Al Loots and Ron Hoffman of AT&T Network Systems (now Lucent Technologies) to Pat vanMidde, which was included at Attachment 8 of the February 29, 1996 Task Force Report. It is reproduced here as Exhibit 11.

There is no reason why California should require an inordinately exaggerated interval to accomplish SMS deployment following selection of a vendor.

GTE proclaims (at GTE Exhibit B) that the "schedule provides a window of three to six months to complete standardization testing," without providing any description of what this testing entails, or why it is required.

In that same Exhibit B, GTE concludes that "the choice of LRN or QoR is not the critical factor in determining the delivery date for LNP." Yet, item one in the same exhibit is exactly that choice, which GTE asserts the Commission must make by the end of September, 1996, stating that "this date is important in that certain vendors require a commitment before commencement of switch software development." Since switch vendors are already developing LRN, presumably the choice, and the timing of that choice, will make a difference in determining the delivery date for LNP, if QoR is chosen.

Likewise, Pacific states (at p. 2) that "vendors need commitments in order to go forward with software development." As noted above, this is not true for LRN. Vendors are proceeding with LRN development based on regulatory mandates in other states (Illinois, Georgia, New York, Colorado). There are no such incentives for QoR at present. Thus, a CPUC decision delayed to 9/96 will affect QoR availability, but not LRN availability.

Pacific claims (at p. 2) that certain (unspecified) operational support systems will require replacement for LNP, and that these unidentified

systems "will require work which will not be completed until the fourth quarter of 1998 for both LRN and QoR." This is a bald-faced attempt to rig the implementation schedule such that it is not only delayed, but is the same for both LRN and QoR. Perhaps, since some of the systems listed in Pacific's Exhibit 2 are Bellcore systems, there is an opportunity to accelerate the required work. This could possibly be achieved if Pacific were to direct Bellcore to work on the requirements for affected operational support systems, instead of duplicating completed industry efforts on developing generic switch requirements. Notably, Pacific appears to indicate that operational support system work can indeed be expedited, when it suggests (at page 8 of Pacific's Exhibit 3) that earlier LNP deployment is possible to allow overlay NPA relief.

Both Pacific and GTE show First Office Application for QoR on the Lucent 1AESS switch as 1Q98, but show General Availability earlier, at 2Q97. This cannot be, as General Availability must follow the First Office Application, not precede it. Perhaps this is not a logical problem, but merely a careless mistake.

Both Pacific and GTE allude to an unspecified Rate Center consistency issue. This should be recognized as yet another misplaced attempt to have the Commission revisit its March 13, 1996 decision to conserve scarce numbering resources by not requiring CLCs to obtain an entire NXX code to

match existing incumbent rate center areas. At the NXX Rate Center workshops which lasted several days on this issue, these dominant incumbents made no mention of this concern, perhaps because the CACD staff conducting the workshop clearly stated that the Commission was not going to readdress that decision.

**5. LRN is Superior on All Counts: Technical Merits, Relative Cost, Development and Availability, and Competitive Neutrality; the Commission Should Not Delay in Ordering its Swift Implementation.**

Despite the dominant incumbents' efforts to obfuscate, delay, and confuse, the record is even clearer than it was when the Task Force submitted its Report in February.<sup>18</sup> The past several months have served to sidetrack LNP deployment, but not to derail it. The evidence is overwhelming:

- (1) The relative cost data submitted in this proceeding, to the extent it can be relied upon, shows that there is no appreciable difference between the cost of QoR and LRN.
- (2) LRN is technically superior to QoR or any other "carrier choice"; it is not surprising that no state has ever selected any proposal except LRN for permanent LNP implementation.

---

<sup>18</sup> As is apparent from the points noted in this filing, Pacific has been particularly concerned with impugning LRN vs. QoR. Attached as Exhibit 12 is an assessment of Pacific's statements to the FCC on LRN and QoR, in the areas of Competitive Impacts, Costs, Technical Feasibility, and Industry Participation in Development.

- (3) LRN development is well underway and the deployment schedule suggested by joint comments is entirely reasonable, while Pacific's and GTEC's schedules are self-serving, anticompetitive, and will indirectly contribute to number exhaust.
- (4) Despite QoR's benefiting from the passage of time, it suffers from the same deficiencies as when it was called "Look Ahead" in December. Those deficiencies target new competitors: inefficient routing which relies upon the incumbent LEC network, and service degradation only on calls to ported customers.

#### **6. Conclusion**

For all the foregoing reasons, AT&T, MCI and CCTA urge the Commission to order LRN as the permanent LNP architecture for California, and to finally reject the efforts of the dominant incumbent LECs to delay implementation of LNP.

Respectfully submitted,



---

Glenn Stover

Attorney for  
AT&T Communications  
of California, Inc.

795 Folsom Street  
San Francisco, CA 94107

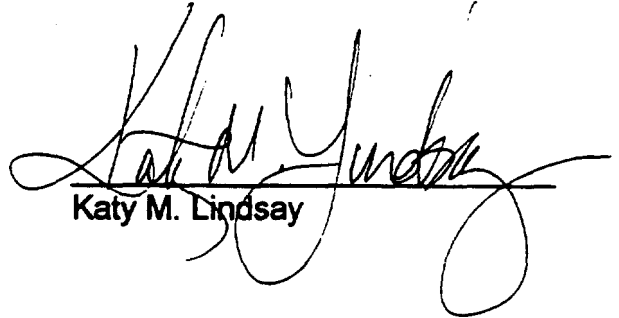
(415) 442-5550

Dated: June 14, 1996

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served a copy of Comments of AT&T Communications of California, Inc. and MCI Telecommunications Corp. on the Supplemental Local Number Portability Reports to the California Public Utilities Commission to all known parties to R.95-04-043/I.95-04-044 by mailing a properly addressed copy by first-class mail with postage prepaid to each party named in the official service list.

Executed on June 14, 1996 at San Francisco, California.



Katy M. Lindsay

### QoR Scoring Analysis

Due to the time delay between scoring QoR and LRN (5 months - December, 1995 through May, 1996) and progress made by the industry in resolving questions/issues associated with LNP in general since LRN was initially scored, it is necessary to interpret the aggregate numeric scores that resulted from the QoR Scoring exercise on May 24, 1996.

Below the attributes of the CA LNP Task Force LNP Framework are segregated into two groupings: 1) attributes that are equally satisfied by both LRN and QoR; and 2) attributes that differentiate between the technical aspects of LRN and QoR. For each attribute, a qualitative justification of its classification is given as well as an interpretation of the aggregate score for that attribute relative to the qualitative justification.

- **Attributes Equally Satisfied by LRN and QoR**

1. **Service Interactions** - with the exception of call set up time referenced in the Framework description for this attribute, proper functioning of services and service interaction is primarily achieved through the use of a single number addressing scheme using the location routing number. Since both LRN and QoR utilize exactly the same addressing scheme, they are equally capable of preserving all service functionality and interactions. The aggregate score for this category turned out higher for QoR than LRN. During the scoring exercise, justification for higher QoR scores was in two areas: 1) scoring company felt more information was available and service interactions were better understood in May, 1996 than they had been in December, 1995; 2) since many of the features are reliant on 10 digit global title translations, QoR was perceived as more compliant as it allowed the option to perform 10 digit GTT in either the STP or SCP. With regard to the first item, it is in fact true that the industry has made significant progress in understanding requirements for service interaction and resolving any issues identified with it. That progress equally benefits any solutions that utilize a single number addressing scheme. The lower score for LRN is, therefore, a function of the passage of time, not a function of the technical merit of LRN. With regard to the second item, it must be clarified that LRN also allows carriers the option of performing 10 digit GTT in the SCP or in the STP. The LRN CA Framework Response, dated 10-20-95, Section 4.F states the following: "The architecture [LRN] does not preclude the use of 10-digit GTT at an STP if the service provider so chooses..."
2. **Operator Services** - While there are implications for operator services call flows, the industry has made great progress in defining those call flows, resolving issues that have surfaced and documenting requirements for them. Both QoR and LRN handle operator services calls in exactly the same manner. Pacific Bell pointed out during its presentation of the QoR proposed call model that operator services calls will not be subject to QoR processing but rather will be routed on to an operator system for handling in exactly the same fashion as with the LRN call model. Explanation given at the scoring session for higher scores for QoR in this attribute were again relative to the passage of time and new learnings as well as the 10 digit GTT function required for a number of operator services call types. As with Service interactions, these are not relevant to the technical merit of LRN and should be considered in that context.
3. **911/E911** - equal scores in this attribute.

4. AIN/IN Impact - There are two sub-attributes within this attribute: Performance Impact and AIN Services Impact. Since both LRN and QoR utilize AIN/IN queries to obtain the LRN for calls to ported numbers they have equal impact on AIN/IN. The majority of companies scored LRN and QoR equal in this attribute as a result. Those companies who did score QoR higher, did so primarily with regard to the Performance sub-attribute, claiming QoR to be superior since it performs AIN/IN queries only for calls to ported numbers. There is a separate attribute specifically addressing Performance described below where such considerations are more appropriately given. In addition, opposing parties view Performance characteristics as necessarily addressing *equitable* performance for all lines (both ported and non-porting), which is not the case for QoR. This will be discussed in more detail in sections below.
5. Impact on NANP - Since both LRN and QoR use the same addressing scheme, i.e., the location routing number, they utilize the NANP in exactly the same manner. Again, the majority of companies scored the two solutions equal in this attribute. Those that scored QoR higher did so primarily based on new learnings since LRN was scored - i.e., not based on technical merit.

- **Attributes that Differentiate LRN from QoR**

Aggregate scores in all these attributes were lower for QoR than for LRN.

1. End User Impacts - The primary differentiator in this attribute is sub-attribute B. **Call Redirection Transparency** - *Non-ported customer will perceive no difference when a number is ported.* Non-ported customers who initiate calls to ported customers will perceive a difference in call set up time as compared to calls initiated to non-ported customers. This is attributed to the extra processing required for calls to ported numbers as described in the Pacific Bell description of the QoR Proposal included in the CA LNP Task Force Supplemental Report to the CPUC, June 3, 1996, Section 1.3.8 - " QoR will not add incremental call setup time or post dial delay for calls to non-ported numbers. The incremental call setup time and post dial delay for calls to ported numbers...will primarily consist of the time to send an IAM, determine the number is not served by the donor switch, formulate and send a REL message, and the time to launch a query to determine routing to the final switch." AT&T has estimated this processing to increase existing post dial delay by more than one second for calls to ported numbers.
2. Triggering - This attribute addresses the solutions compatibility with performing dips at originating, terminating and N-1 offices. The capability of performing the database dips includes not only the launching of the query itself but also the determination that a query must be launched. With QoR, the determination that a query must be launched can only be accomplished by first routing the call to the donor switch, which is equivalent to the terminating switch in triggering terminology. Thus *only* the terminating switch is capable of determining that a query must be launched. The terminating switch upon making that determination, instructs either the originating or N-1 switch, as appropriate, to launch a query.
3. Routing - The sub-attributes within this attribute that differentiate QoR from LRN are A. **Tandem Interconnection** and B. **LEC-LEC**. Tandem Interconnection refers to the ability to interface ALEC and/or LEC end offices to tandem switches, including maintaining such tandem interconnection arrangements that may already be in place when LNP is introduced to the network. While all existing facility routes (through tandem switches or otherwise) can be utilized under the LRN proposal without modification to switch capabilities or facility



characteristics, QoR requires that the interconnecting tandem switch be QoR capable and that all facility routes in the call path be SS7. In addition, these conditions must be met in the call path to the donor switch which should not even be involved in call set up once the customer has ported their number. The LEC-LEC sub-attribute states that the *"Solution should not require that the calls be routed through another LEC's network to complete calls."* QoR is non-compliant with this requirement. All calls to ported numbers are first routed to the donor switch, then re-routed to the correct serving switch.

4. **Signaling** - The differentiation between QoR and LRN in this attribute is associated with additional standards (message content and signaling values) as well as MF interoffice signaling. QoR requires all the SS7 signaling standards modifications of LRN plus the addition of a QoR Routing Attempt Indicator and new Release cause value. With regard to MF interoffice signaling both QoR and LRN have MF interworking implications. With LRN, if a call encounters MF facilities in the call path to the switch now serving the line, the LRN signaling information in the call setup message will not be passed to the switch on the far end of the MF facility. If that switch is the serving switch, the call will complete based on the dialed number. If that switch is not the serving switch, another LRN query must be performed to continue routing the call.

With QoR, two call paths must be considered. If the QoR routing attempt to the donor switch encounters an MF facility, the QoR signaling information in the call setup message will not be passed to the switch on the far end of the MF facility. LNP processing (QoR or LRN, depending on the capabilities of the switch) will be re-started. All switches and facilities in the call path leading to the MF facility will remain in the voice path once it is finally established. Upon reaching the donor switch and determining that the number has been ported, the call is released back to the nearest QoR initiating switch where LRN processing is invoked. At this point, MF interworking as described in the previous paragraph for LRN also applies in the call path to the serving switch.

5. **Performance** - The sub-attributes within this attribute that differentiate QoR and LRN are: **A. Call Set Up/Post Dial Delay**; and **G. Limits Queries on Interoffice Calls**. See End User Impacts discussion above for Call Set Up/Post Dial Delay implications of QoR. Both QoR and LRN require LNP database queries by some switch in the call path on 0+/0- calls, interLATA toll calls, and intraLATA toll calls PICed or dialed around to an alternate carrier. Contrary to some claims, LRN does not require the originating end office to query an LNP database on every call. LRN requires the originating end office to query an LNP database only on local interoffice and intraLATA toll interoffice calls PICed to the originating local carrier, where the NPA-NXX of the dialed number is open to portability. QoR processing applies to these same call types. LNP database queries are avoided on calls to non-portable numbers but at the expense of inefficient incremental processing associated with the QoR routing attempt for calls to ported numbers.
6. **Billing and Rating** - Impacts on Access Records above and beyond those already under development for LRN are anticipated with QoR. In particular, when a QoR routing attempt is initiated and crosses a network boundary, the donor network is expected to process the QoR routing attempt and release the call back to the initiating network for calls to numbers that have ported to a competitor. In this scenario, the donor network will need some mechanism for recording that its network resources were utilized in a QoR routing attempt so that it may be compensated for that utilization. Such recordings will have to be distinguishable from normal failed call attempts to the donor network.
7. **Operations Support Systems** - Provisioning systems will have impacts as a result of QoR incremental to those resulting from LRN. There are three different roles to be played by switches under the QoR proposal, depending on their position within the call flow. The QoR

Initiating Switch must be provisioned to recognize that QoR processing applies for a particular portable NPA-NXX and must maintain a table of ISUP cause values that indicate further LNP processing is necessary. An Intermediate switch must be provisioned such that network management and final handling treatment are not applied there but are left to be applied at the Initiating Switch in case the call path is released by the Donor Switch. The Donor Switch must be provisioned with the QoR release capability so that calls to ported numbers can be released back to the QoR Initiating Switch. (See page 17 of Pacific Bell Query on Release Presentation to the CA LNP Task Force, May 10, 1996.)

8. **Switch Impact** - This attribute addresses both impacts to switch hardware/software and availability dates. QoR requires all development necessary for LRN plus additional call processing, operations, maintenance, administration, and provisioning impacts. Additionally, QoR imposes on carriers not choosing to utilize the QoR mechanism to at least be capable of interworking with another carrier who does choose it by releasing QoR routing attempts to ported numbers. While positioned under the guise of "carrier choice," QoR in fact forces certain carriers to operate in accordance with decisions made by other carriers. LRN imposes no such constraints.
9. **Applicability/Expandability** - While QoR does have applicability to service provider portability, it has limited longevity. At some level of ported line penetration, the probability that the QoR routing attempt will successfully complete to a non-ported number will reduce so as to allow the inefficiencies of the failed QoR routing attempts to overcome the minimal benefits of the avoided database queries. The actual penetration level and cross-over point where QoR becomes ineffective depends on a number of factors including costs and switch real-time usage. AT&T estimates the crossover to be between 10% and 25% based on switch real-time utilization (range is a function of different switch types). Cost analysis will vary by network and network provider. Perhaps some indication will be gleaned from the QoR cost filings submitted to the ALJ.

This attribute also requires that all solutions be expandable to support location portability as well as service provider portability. QoR is based on a premise that each line number has a default assigned switch. All call attempts to that line number will first be routed to the default assigned switch and re-routed from there if the switch no longer serves that line. With the introduction of location portability, and perhaps more importantly, pooled number assignment and administration, the concept of a default assigned switch will be eliminated. At that point, there will be no "donor" switch for the QoR routing attempt to be directed to and all calls to portable areas will require database queries to obtain the correct location routing number.

10. **Administration** - Switch Translation impacts and corresponding recent change activity associated with the incremental provisioning required by QoR makes it less desirable from an Administration perspective than LRN. See Operations Support Systems impacts described above.

**Analysis of PacBell Submission to ALJ**

	LRN		20% QOR		Difference		
	Invest.	Exp.	Invest.	Exp.	Invest.	Exp.	Total

## Analysis of PacBell \$1B LRN Study

	1997		1998		1999		TOTAL	
	Invest.	Exp.	Invest	Fxn	Invest	Fxn	Invest	Fxn

### Adjusted Analysis of Pacific Bell Cost Study PUBLIC VERSION

The cost difference between QoR and LRN, according to Pacific's exhibit 3 pages 5, 6, 7, is 10 percent, 7 percent and 5 percent at 20 percent, 30 percent and 40 percent porting rate, respectively. These differences are negligible. However, the gap between QoR and LRN can be completely eliminated with changes to Pacific's assumptions, as follows: Using a non-link limited SCP with at least one thousand transactions per second; removing real time costs, which Pacific had included only for LRN; removing the cost associated with Assumption 5, where Pacific assumed a network engineered to handle queries of the largest interLATA carrier; and adjusting Assumption 9 to reflect STP-SCP A-Links engineered at 0.4 erlang, not 0.3. The following table highlights the modifications and the cumulative impact on costs at different porting rates.

20% Porting Rate	Reason	QoR	LRN	Difference
P*B Original Cost Numbers		\$458M	\$529M	- \$71M
Study Adjustments		- \$12M	- \$82M	- \$1M
Total Costs		\$446M	\$447M	- \$1M

30% Porting Rate	Reason	QoR	LRN	Difference
P*B Original Cost Numbers		\$471M	\$529M	- \$58M
Study Adjustments		- \$12M	- \$82M	+ \$12M
Total Costs (QoR costs More than LRN)		\$459M	\$447M	+ \$12M

40% Porting Rate	Reason	QoR	LRN	Difference
P*B Original Cost Numbers		\$484M	\$529M	- \$45M
Study Adjustments		- \$24M	- \$82M	+ \$13M
Total Costs (QoR costs More than LRN)		\$460M	\$447M	+ \$13M

Additional Costs elements that are not included in P\*B cost study that would impact the costs of QoR are:

Additional SS7 ISUP load for call setup (more QoR costs)  
 Additional trunks for QoR ported calls (more QoR costs)  
 Reduction in intraLATA toll traffic due to presubscription (fewer DB queries)

\* Real-time cost for QoR becomes more expensive than LRN  
 between 12% and 23% porting rate, based on switch type  
 (see exhibit 4)

## LRN vs. QOR: Switch Usage Efficiency

### Data

Call Model	Type of Call	Relative Switch Usage	
		Lucent	Siemens
LRN	Call to Ported Number	1.30	1.34
	Call to Non-Ported Number	1.15	1.34
QOR	Call to Ported Number	2.10	2.34
	Call to Non-Ported Number	1.04	1.04

Source: Letter from Al Loots, Lucent Technologies, to Jerry Abercrombie, Woody Traylor, and Patricia L. vanMidde, dated May 20, 1996, and Letter from Terry Jennings, Siemens Stromberg-Carlson, to California Local Number Portability Co-Chairs dated May 22, 1996.

### Assumption

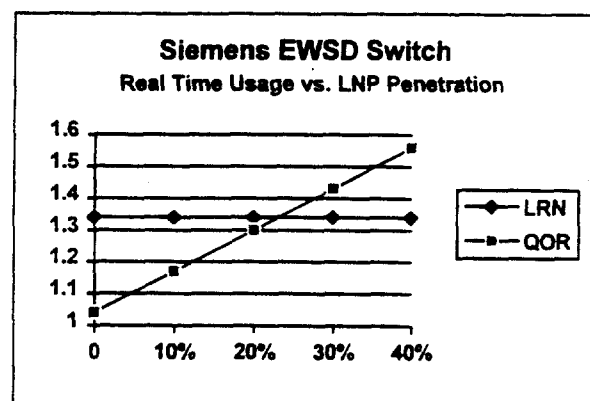
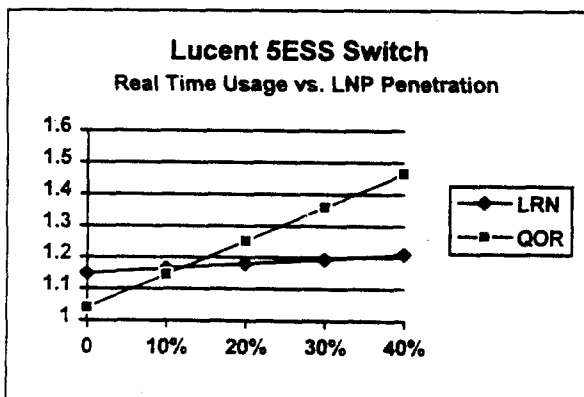
No intermediate (tandem) switches, i.e., direct trunking between originating and donor switches for QOR: This favors QOR since the QOR switch usage of intermediate (tandem) switches is neglected.

### Calculations

Assume  $P$  = % of the Numbers that are Ported;  $(100-P)$  = % of the Numbers that are not Ported

Lucent	Siemens
$1.30P + 1.15(100-P) = 2.10P + 1.04(100-P)$	$1.34P + 1.34(100-P) = 2.34P + 1.04(100-P)$
$P = 12\%$	$P = 23\%$

### Results



The crossover points for the Lucent and Siemens switches are at LNP penetrations of 12% and 23%, respectively. Since intermediate switches were neglected, actual crossover points are lower. Above these points, LRN is more efficient than QOR.

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the	)	
Commission's Own Motion Into	)	R.95-04-043
Competition for Local Exchange	)	
Service.	)	
<hr/>		

Order Instituting Investigation	)	I.95-04-044
on the Commission's Own Motion	)	
into Competition for Local Exchange	)	
Service.	)	
<hr/>		

**PACIFIC BELL'S (U 1001 C) COMMENTS ON THE  
COMMISSION'S INTERIM POLICY CONCERNING OVERLAYS**

**I.  
INTRODUCTION**

The Commission should not determine a future policy on overlays based on the information it had when it issued the AirTouch Decision.<sup>1</sup> New information justifies approving the overlay method for future NPA relief even though it was rejected for the 310 Numbering Plan Area ("NPA").

- Permanent Number Portability will be available when the NPAs at issue exhaust.

---

<sup>1</sup> AirTouch Communications and MCI Telecommunications Corp. v. Pacific Bell, mimeo, Decision 95-08-052 (August 11, 1995).

If the Commission expedites hearings in Phase III of local competition to evaluate the critical numbering issues these comments raise, it may be possible for the Commission to issue a permanent policy on overlays by July 31, 1996.<sup>7</sup>

**B. THE FOLLOWING FACTS JUSTIFY CONSIDERING AN OVERLAY NOW EVEN THOUGH THE OVERLAY WAS REJECTED FOR THE 310 NPA.**

**1. Permanent Number Portability Will Be Available When The NPAs At Issue Here Exhaust.**

The information available on the timing of permanent number portability when the 310 plan was being considered was tentative at best. Since then, because of state and federal action in this area, we know much more. Now we can reasonably pinpoint a date when number portability will be readily available. For example, the Coalition has stated that switch vendors will be able to provide software with number portability capability by the second quarter of 1997.<sup>8</sup>

None of the NPAs at issue here is projected to exhaust before this date. The 415 NPA is projected to exhaust the first quarter of 1998 if a split is implemented, but will not exhaust until the second quarter of 1998 if an overlay is implemented.<sup>9</sup> The 916 NPA is projected to exhaust the second quarter of 1988 and the 714 NPA in the

---

<sup>7</sup> The Code Administrator stated in the 415 and 916 relief filings that a decision on a relief plan was needed by May 31st, 1996. We disagree with this date. Public meetings can be held in June presenting both the split and the overlay plans to the public. The Code Administrator submitted this date on behalf of the industry because of the issues the Coalition raised concerning the public meetings.

<sup>8</sup> See Coalition's Comments on California Local Number Portability Task Force Report of February 29, 1996 at p. 18 (filed with the Commission on March 15, 1996).

<sup>9</sup> The projected dates for exhaust are later if an overlay is implemented because a permissive and mandatory dialing period is unnecessary. See Attachment A.



BEFORE THE PUBLIC UTILITIES COMMISSION  
 OF THE STATE OF CALIFORNIA

APR 18 1996

-000-

 OV-NIT \_\_\_\_\_  
 MESS \_\_\_\_\_  
 INTER-OF \_\_\_\_\_  
 Other \_\_\_\_\_  
 REG. GEN. \_\_\_\_\_  
 REG. MAIL \_\_\_\_\_  
 FAX \_\_\_\_\_  
 Initials *PC*

 Order Instituting Rulemaking  
 on the Commission's Own Motion  
 into Competition for Local  
 Exchange Service.

R.95-04-043

 Order Instituting Investigation  
 on the Commission's Own Motion  
 into Competition for Local  
 Exchange Service.

I.95-04-044

COMMENTS OF GTE CALIFORNIA INCORPORATED (U 1002 C)  
 IN RESPONSE TO THE ADMINISTRATIVE LAW JUDGE'S  
 RULING ADDRESSING JOINT MOTION FOR AN ORDER ON  
OVERLAY POLICY AND GRANTING PETITIONS TO INTERVENE

As directed in the Administrative Law Judge's Ruling Addressing Joint Motion For An Order On Overlay Policy and Granting Petitions to Intervene (Ruling) dated April 2, 1996, GTE California Incorporated (U 1002 C) (GTE) here sets forth its Comments on the appropriate interim statewide policy regarding consideration of area code overlays for pending and soon-to-be filed area code relief plans. It is GTE's belief that the California Public Utilities Commission (Commission) should look at each area code relief plan on a case-by-case basis and seriously entertain the possibility of using both overlay and split relief plans as appropriate to specific numbering plan areas (NPAs)